

CLAIMS

What is claimed is:

1 1. In a network comprising a plurality of computing devices, each computing device having
2 a memory and being capable of accessing the Internet, and at least one of the computing devices
3 being capable of connecting to the Internet, each computing device capable of connecting to the
4 Internet having a connection priority, a method for assigning an Internet gateway for the
5 network, comprising the steps of:

6 broadcasting to the network a request to become the gateway from one of the computing
7 devices capable of connecting to the Internet, wherein the request to become the gateway
8 includes the connection priority of the computing device broadcasting the request; and

9 assigning the computing device broadcasting the request as the gateway for the network
10 if the computing device broadcasting the request does not receive a response from the other
11 computing devices within a predetermined time period.

12 2. The method of claim 1, wherein the predetermined time period is approximately 1 to 5
13 seconds.

14 3. The method of claim 1, wherein each computing device is assigned a unique Internet
15 protocol (IP) address, further comprising the steps of:

16 broadcasting to the network the IP address of the computing device assigned as the
17 gateway for the network; and

18 storing in the memory of each computing device the IP address broadcasted to the
19 network as the IP address of the gateway for the network.

20 4. The method of claim 1, wherein the computing device assigned as the gateway for the
21 network is assigned a unique client IP address and assumes a predetermined gateway IP address.

22 5. The method of claim 1, wherein one of the computing devices is capable of operating as a
23 proxy for the Internet gateway and is capable of being assigned a unique client IP address and a
24 proxy IP address, and further wherein at least one of the other computing devices is capable of
25 accessing the Internet by performing the steps of:

transmitting from the respective computing device to the proxy IP address of the proxy a message to be sent to the Internet; and

transmitting from the proxy IP address of the proxy to the computing device assigned as the gateway for the network the message to be sent to the Internet.

6. The method of claim 1, wherein at least one of the other computing devices capable of connecting to the Internet responds to the broadcasted request to become the gateway by performing the steps of:

determining whether the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request to become the gateway;

if the connection priority of the respective computing device is not higher than the connection priority included in the broadcasted request, sending no response to the broadcasted request; and

if the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request, performing the steps of:

broadcasting to the network a request to become the gateway from the respective computing device within the predetermined time period, wherein the request to become the gateway includes the connection priority of the respective computing device; and

assigning the respective computing device as the gateway for the network if the respective computing device receives no response from the other computing devices within the predetermined time period.

7. The method of claim 6, wherein the predetermined time period is approximately 1 to 5 seconds.

8. The method of claim 6, wherein each computing device is assigned a unique Internet protocol (IP) address, further comprising the steps of:

broadcasting to the network the IP address of the computing device assigned as the gateway for the network; and

storing in the memory of each computing device the IP address broadcasted to the network as the IP address of the gateway for the network.

1 9. The method of claim 6, wherein the computing device assigned as the gateway for the
2 network is assigned a unique client IP address and assumes a predetermined gateway IP address.

1 10. The method of claim 6, wherein one of the computing devices is capable of operating as a
2 proxy for the Internet gateway and is capable of being assigned a unique client IP address and a
3 proxy IP address, and further wherein at least one of the other computing devices is capable of
4 accessing the Internet by performing the steps of:

5 transmitting from the respective computing device to the proxy IP address of the proxy a
6 message to be sent to the Internet; and

7 transmitting from the proxy IP address of the proxy to the computing device assigned as
8 the gateway for the network the message to be sent to the Internet.

1 11. A storage medium readable by a computing device and having instructions encoded
2 thereon for causing the computing device to perform, in a network comprising a plurality of
3 computing devices, each computing device having a memory and being capable of accessing the
4 Internet, and at least one of the computing devices being capable of connecting to the Internet,
5 each computing device capable of connecting to the Internet having a connection priority, a
6 method for assigning an Internet gateway for the network, the method comprising the steps of:

7 broadcasting to the network a request to become the gateway from one of the computing
8 devices capable of connecting to the Internet, wherein the request to become the gateway
9 includes the connection priority of the computing device broadcasting the request; and

10 assigning the computing device broadcasting the request as the gateway for the network
11 if the computing device broadcasting the request does not receive a response from the other
12 computing devices within a predetermined time period.

1 12. The storage medium of claim 11, wherein each computing device is assigned a unique
2 Internet protocol (IP) address, and further wherein the method further comprises the steps of:

3 broadcasting to the network the IP address of the computing device assigned as the
4 gateway for the network; and

5 storing in the memory of each computing device the IP address broadcasted to the
6 network as the IP address of the gateway for the network.

13. The storage medium of claim 11, wherein the computing device assigned as the gateway for the network is assigned a unique client IP address and assumes a predetermined gateway IP address.

14. The storage medium of claim 11, wherein one of the computing devices is capable of operating as a proxy for the Internet gateway and is capable of being assigned a unique client IP address and a proxy IP address, and further wherein at least one of the other computing devices is capable of accessing the Internet by performing the steps of:

transmitting from the respective computing device to the proxy IP address of the proxy a message to be sent to the Internet; and

transmitting from the proxy IP address of the proxy to the computing device assigned as the gateway for the network the message to be sent to the Internet.

15. The storage medium of claim 11, wherein at least one of the other computing devices capable of connecting to the Internet responds to the broadcasted request to become the gateway for the network by performing the steps of:

determining whether the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request to become the gateway;

if the connection priority of the respective computing device is not higher than the connection priority included in the broadcasted request, sending no response to the broadcasted request; and

if the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request, performing the steps of:

broadcasting to the network a request to become the gateway from the respective computing device within the predetermined time period, wherein the request to become the gateway includes the connection priority of the respective computing device; and

assigning the respective computing device as the gateway for the network if the respective computing device receives no response from the other computing devices within the predetermined time period.

16. In a network comprising a plurality of computing devices, each computing device having a memory and being capable of accessing the Internet, and at least one of the computing devices being capable of connecting to the Internet, each computing device capable of connecting to the Internet having a connection priority, a method for assigning an Internet gateway for the network, comprising the steps of:

broadcasting to the network a request for a new gateway from one of the computing devices;

in response to the request for the new gateway, broadcasting to the network a request to become the gateway from each computing device capable of connecting to the Internet, wherein each request to become the gateway includes the connection priority of the respective computing device broadcasting the request to become the gateway; and

in response to the request to become the gateway, performing by each computing device capable of connecting to the Internet the steps of:

determining whether the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request to become the gateway;

if the connection priority of the respective computing device is not higher than the connection priority included in the broadcasted request to become the gateway, sending no response to the broadcasted request to become the gateway; and

if the connection priority of the respective computing device is higher than the connection priority included in the broadcasted request to become the gateway, performing the steps of:

broadcasting to the network a request to become the gateway from the respective computing device within the predetermined time period, wherein the request to become the gateway includes the connection priority of the respective computing device; and

assigning the respective computing device as the new gateway for the network if the respective computing device receives no response from the other computing devices within the predetermined time period.

1 17. The method of claim 16, wherein the predetermined time period is approximately 1 to 5
2 seconds.

1 18. The method of claim 16, wherein each computing device is assigned a unique Internet
2 protocol (IP) address, further comprising the steps of:

3 broadcasting to the network the IP address of the computing device assigned as the new
4 gateway for the network; and

5 storing in the memory of each computing device the IP address broadcasted to the
6 network as the IP address of the gateway for the network.

1 19. The method of claim 16, wherein the computing device assigned as the gateway for the
2 network is assigned a unique client IP address and assumes a predetermined gateway IP address.

1 20. The method of claim 16, wherein one of the computing devices is capable of operating as
2 a proxy for the Internet gateway and is capable of being assigned a unique client IP address and a
3 proxy IP address, and further wherein at least one of the other computing devices is capable of
4 accessing the Internet by performing the steps of:

5 transmitting from the respective computing device to the proxy IP address of the proxy a
6 message to be sent to the Internet; and

7 transmitting from the proxy IP address of the proxy to the computing device assigned as
8 the gateway for the network the message to be sent to the Internet.

1 21. A storage medium readable by a computing device and having instructions encoded
2 thereon for causing the computing device to perform, in a network comprising a plurality of
3 computing devices, each computing device having a memory and being capable of accessing the
4 Internet, and at least one of the computing devices being capable of connecting to the Internet,
5 each computing device capable of connecting to the Internet having a connection priority, a
6 method for assigning an Internet gateway for the network, the method comprising the steps of:

7 broadcasting to the network a request for a new gateway from one of the computing
8 devices;

9 in response to the request for the new gateway, broadcasting to the network a request to
10 become the gateway from each computing device capable of connecting to the Internet, wherein
11 each request to become the gateway includes the connection priority of the respective computing
12 device broadcasting the request to become the gateway; and

13 in response to the request to become the gateway, performing by each computing device
14 capable of connecting to the Internet the steps of:

15 determining whether the connection priority of the respective computing device is
16 higher than the connection priority included in the broadcasted request to become the
17 gateway;

18 if the connection priority of the respective computing device is not higher than the
19 connection priority included in the broadcasted request to become the gateway, sending
20 no response to the broadcasted request to become the gateway; and

21 if the connection priority of the respective computing device is higher than the
22 connection priority included in the broadcasted request to become the gateway,
23 performing the steps of:

24 broadcasting to the network a request to become the gateway from the
25 respective computing device within the predetermined time period, wherein the
26 request to become the gateway includes the connection priority of the respective
27 computing device; and

28 assigning the respective computing device as the gateway for the network
29 if the respective computing device receives no response from the other computing
30 devices within the predetermined time period.

1 22. The storage medium of claim 21, wherein each computing device is assigned a unique
2 Internet protocol (IP) address, and further wherein the method further comprises the steps of:

3 broadcasting to the network the IP address of the computing device assigned as the new
4 gateway for the network; and

5 storing in the memory of each computing device the IP address broadcasted to the
6 network as the IP address of the gateway for the network.

1 23. The storage medium of claim 21, wherein the computing device assigned as the gateway
2 for the network is assigned a unique client IP address and assumes a predetermined gateway IP
3 address.

1 24. The storage medium of claim 21, wherein one of the computing devices is capable of
2 operating as a proxy for the Internet gateway and is capable of being assigned a unique client IP
3 address and a proxy IP address, and further wherein at least one of the other computing devices
4 is capable of accessing the Internet by performing the steps of:

5 transmitting from the respective computing device to the proxy IP address of the proxy a
6 message to be sent to the Internet; and

7 transmitting from the proxy IP address of the proxy to the computing device assigned as
8 the gateway for the network the message to be sent to the Internet.

1 25. In a network comprising a plurality of computing devices, each computing device having
2 a memory and being capable of accessing the Internet, and one or more of the computing devices
3 being capable of connecting to the Internet, and one of the computing devices being assigned as
4 a current Internet gateway for the network, a method for assigning an Internet gateway for the
5 network, comprising the steps of:

6 detecting a failure to access the Internet through the current Internet gateway by one of
7 the computing devices;

8 in response to the detected failure, dynamically assigning one of the computing devices
9 capable of connecting to the Internet as a new Internet gateway for the network; and

10 automatically reconfiguring each computing device to access the Internet through the
11 new Internet gateway.

1 26. The method of claim 25, wherein each computing device is assigned a unique Internet
2 protocol (IP) address, and further wherein the step of automatically reconfiguring each
3 computing device to access the Internet through the new Internet gateway further comprises the
4 steps of:

5 broadcasting to the network the IP address of the computing device assigned as the new
6 Internet gateway for the network; and

7 storing in the memory of each computing device the IP address broadcasted to the
8 network as the IP address of the Internet gateway for the network.

1 27. The method of claim 25, wherein the computing device assigned as the gateway for the
2 network is assigned a unique client IP address and assumes a predetermined gateway IP address.

1 28. The method of claim 25, wherein one of the computing devices is capable of operating as
2 a proxy for the Internet gateway and is capable of being assigned a unique client IP address and a
3 proxy IP address, and further wherein at least one of the other computing devices is capable of
4 accessing the Internet by performing the steps of:

5 transmitting from the respective computing device to the proxy IP address of the proxy a
6 message to be sent to the Internet; and

7 transmitting from the proxy IP address of the proxy to the computing device assigned as
8 the gateway for the network the message to be sent to the Internet.

1 29. The method of claim 25, wherein the step of dynamically assigning one of the computing
2 devices capable of connecting to the Internet as the new Internet gateway for the network further
3 comprises the steps of:

4 in response to the detected failure, broadcasting to the network a request to become the
5 gateway from one of the computing device capable of connecting to the Internet, wherein the
6 request to become the gateway includes the connection priority of the computing device
7 broadcasting the request; and

8 assigning the computing device broadcasting the request as the new Internet gateway for
9 the network if the computing device broadcasting the request does not receive a response from
10 the other computing devices within a predetermined time period.

1 30. The method of claim 29, wherein the predetermined time period is approximately 1 to 5
2 seconds.

1 31. The method of claim 29, wherein at least one of the other computing devices capable of
2 connecting to the Internet responds to the broadcasted request to become the gateway by
3 performing the steps of:

4 determining whether the connection priority of the respective computing device is higher
5 than the connection priority included in the broadcasted request to become the gateway;

6 if the connection priority of the respective computing device is not higher than the
7 connection priority included in the broadcasted request to become the gateway, sending no
8 response to the broadcasted request; and

9 if the connection priority of the respective computing device is higher than the
10 connection priority included in the broadcasted request to become the gateway, performing the
11 steps of:

12 broadcasting to the network a request to become the gateway from the respective
13 computing device within the predetermined time period, wherein the request to become
14 the gateway includes the connection priority of the respective computing device; and

15 assigning the respective computing device as the new Internet gateway for the
16 network if the respective computing device receives no response from the other
17 computing devices within the predetermined time period.

1 32. The method of claim 31, wherein each computing device is assigned a unique Internet
2 protocol (IP) address, and further wherein the step of automatically reconfiguring each
3 computing device to access the Internet through the new Internet gateway further comprises the
4 steps of:

5 broadcasting to the network the IP address of the computing device assigned as the new
6 Internet gateway for the network; and

7 storing in the memory of each computing device the IP address broadcasted to the
8 network as the IP address of the Internet gateway for the network.

1 33. The method of claim 31, wherein the computing device assigned as the gateway for the
2 network is assigned a unique client IP address and assumes a predetermined gateway IP address.

1 34. The method of claim 31, wherein one of the computing devices is capable of operating as
2 a proxy for the Internet gateway and is capable of being assigned a unique client IP address and a
3 proxy IP address, and further wherein at least one of the other computing devices is capable of
4 accessing the Internet by performing the steps of:

5 transmitting from the respective computing device to the proxy IP address of the proxy a
6 message to be sent to the Internet; and

7 transmitting from the proxy IP address of the proxy to the computing device assigned as
8 the gateway for the network the message to be sent to the Internet.

1 35. A storage medium readable by a computing device and having instructions encoded
2 thereon for causing the computing device to perform, in a network comprising a plurality of
3 computing devices, each computing device having a memory and being capable of accessing the
4 Internet, and one or more of the computing devices being capable of connecting to the Internet,
5 and one of the computing devices being assigned as a current Internet gateway for the network, a
6 method for assigning an Internet gateway for the network, the method comprising the steps of:

7 detecting a failure to access the Internet through the current Internet gateway by one of
8 the computing devices;

9 dynamically assigning one of the computing devices capable of connecting to the Internet
10 as a new Internet gateway for the network; and

11 automatically reconfiguring each computing device to access the Internet through the
12 new Internet gateway.

1 36. The storage medium of claim 35, wherein each computing device is assigned a unique
2 Internet protocol (IP) address, and further wherein the step of automatically reconfiguring each
3 computing device to access the Internet through the new Internet gateway further comprises the
4 steps of:

5 broadcasting to the network the IP address of the computing device assigned as the new
6 Internet gateway for the network; and

7 storing in the memory of each computing device the IP address broadcasted to the
8 network as the IP address of the Internet gateway for the network.

1 37. The storage medium of claim 35, wherein the computing device assigned as the gateway
2 for the network is assigned a unique client IP address and assumes a predetermined gateway IP
3 address.

1 38. The storage medium of claim 35, wherein one of the computing devices is capable of
2 operating as a proxy having a unique sending IP address and a unique receiving IP address, and
3 further wherein at least one of the other computing devices is capable of accessing the Internet
4 by performing the steps of:

5 transmitting from the respective computing device to the receiving IP address of the
6 proxy a message to be sent to the Internet; and

7 routing from the sending IP address of the proxy to the computing device assigned as the
8 gateway for the network the message to be sent to the Internet.

1 39. The storage medium of claim 35, wherein the step of dynamically assigning one of the
2 computing devices capable of connecting to the Internet as the new Internet gateway for the
3 network further comprises the steps of:

4 broadcasting to the network a request to become the gateway from one of the computing
5 devices capable of connecting to the Internet, wherein the request to become the gateway
6 includes the connection priority of the computing device broadcasting the request; and

7 assigning the computing device broadcasting the request as the new Internet gateway for
8 the network if the computing device broadcasting the request does not receive a response from
9 the other computing devices within a predetermined time period.

1 40. The storage medium of claim 39, wherein at least one of the other computing devices
2 capable of connecting to the Internet responds to the broadcasted request to become the gateway
3 by performing the steps of:

4 determining whether the connection priority of the respective computing device is higher
5 than the connection priority included in the broadcasted request to become the gateway;

6 if the connection priority of the respective computing device is not higher than the
7 connection priority included in the broadcasted request to become the gateway, sending no
8 response to the broadcasted request; and

9 if the connection priority of the respective computing device is higher than the
10 connection priority included in the broadcasted request to become the gateway, performing the
11 steps of:

12 broadcasting to the network a request to become the gateway from the respective
13 computing device within the predetermined time period, wherein the request to become
14 the gateway includes the connection priority of the respective computing device; and
15 assigning the respective computing device as the new Internet gateway for the
16 network if the respective computing device receives no response from the other
17 computing devices within the predetermined time period.